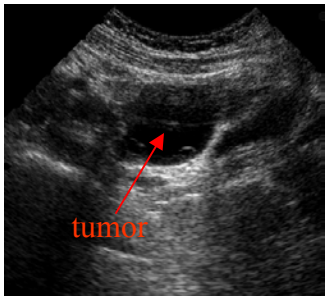
Success Story

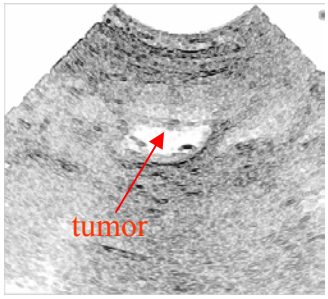
IMAGE ENHANCEMENT SOFTWARE

Description of Innovation

Engineers at NASA's Kennedy Space Center (KSC) have developed a series of imaging processing technologies based on fuzzy reasoning. Fuzzy reasoning is an approach to computing based on "degrees of truth" rather than the usual "true or false" (1 or 0) logic on which the modern computer is based. Fuzzy reasoning seems closer to the way our brains work. Fuzzy reasoning is used in making machines do a better, more precise job. Zeus Technologies, Inc. of Celebration, Florida has licensed the fuzzy reasoning technologies (aka FRED and FRAT) for applications in the medical industry.



Original Sonogram image



Enhanced image showing a cancerous tumor

NASA currently uses the imaging technologies in two critical systems: The first system is used to identify and track foreign object debris (FOD) during Space Shuttle liftoff and is a key component of the current analysis in the investigation of the Space Shuttle Columbia explosion. The second system, the Cable and Line Inspection System (CLIM), is used to test the Space Shuttle's emergency escape system.

Commercial Benefits

Under the license agreement, Zeus Technologies, will use the imaging techniques along with existing learning approaches to build an intelligent medical imaging analysis system capable of detecting malign tumors/masses in real via soft computing (fuzzy reasoning is one of the constitutes of soft computing). The image analysis system will be embedded into current and future medical imaging devices to assist doctors and imaging specialists on the evaluation and classification of masses present in medical images.

Innovative Technology Transfer Partnership (ITTP)

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Partnership Contributions

Zeus Technologies is planning to use the software to analyze sonogram images and detect ovarian cancer. Zeus invested 1500 man hours into the development plan to successfully reach a proof of concept. Zeus is owned by Proyetech out of Bogota Colombia. Proyetech USA Corporation, a shareholder of Zeus Technologies, will provide financial resources and seek venture capital investors in the technology.

ITTP Role

In a coordinated effort between Research Triangle Institute (RTI), North Carolina, the Southeast Regional Technology Transfer Center at Georgia Tech in Atlanta Georgia and the NASA Kennedy Space Center Technology Transfer Office, the KSC imaging software was marketed nationwide to industries including medical, geophysical, photography, character recognition, and document clean up companies. RTI published a website for interested companies to review information and processed images enhanced by the technologies. John Geikler and Kirsten Reith of Research Triangle Institute fielded requests from companies with further interest in the technologies. Innovators, Jesus Dominguez and Steve Klinko of ASRC Aerospace and NASA's Jose Amador provided answers to questions on the technology. NASA's James Nichols and ASRC's Jeff Kohler processed license applications for the technologies and software usage agreements for other government agencies.

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